

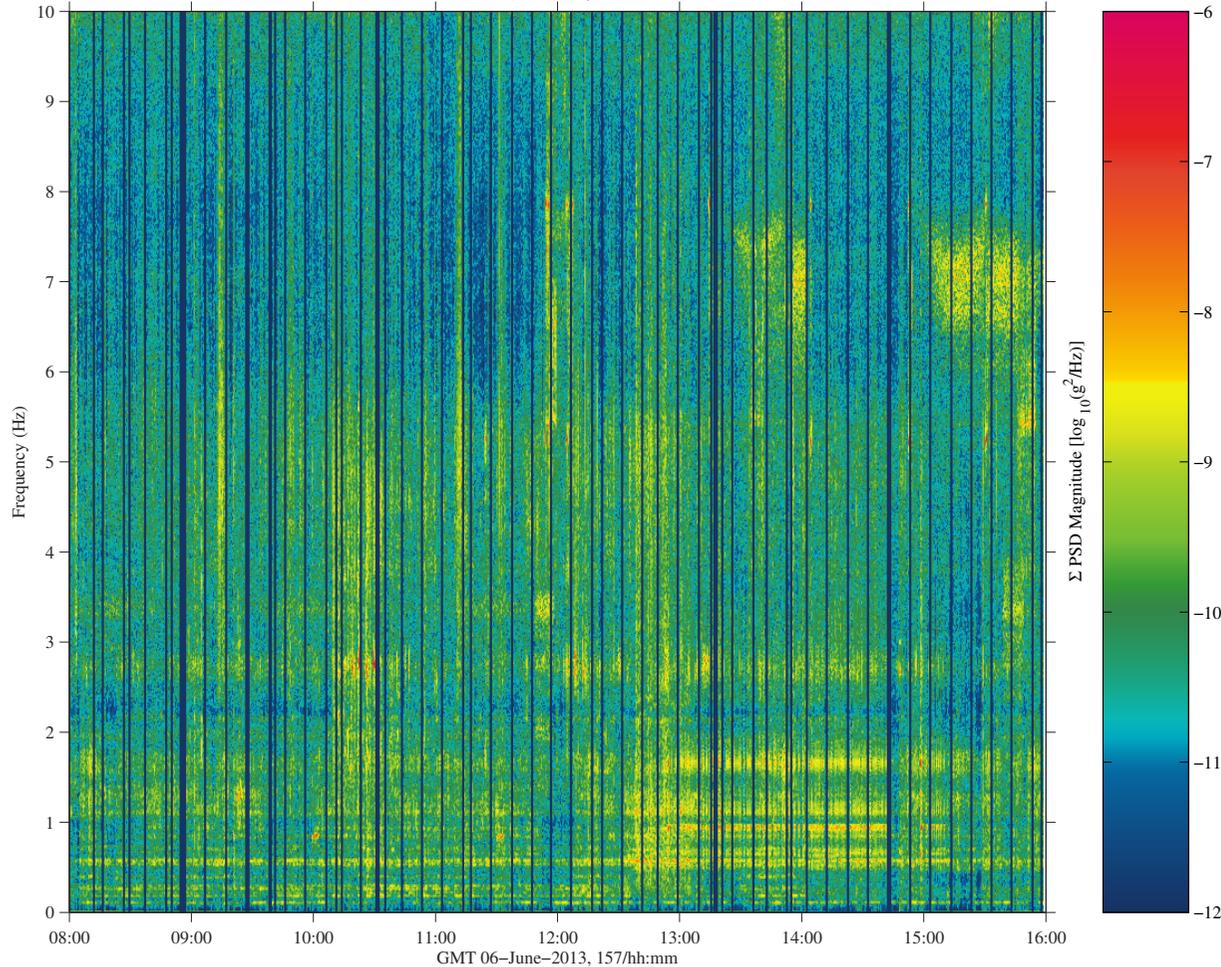
# Progress 51P Propellant Line Purge Qualify

sams2, 121f03 at LAB1O1, ER2, Lower Z Panel:[191.54 -40.54 135.25]  
500.0000 sa/sec (200.00 Hz)  
 $\Delta f = 0.015$  Hz, Nfft = 32768  
Temp. Res. = 32.768 sec, No = 16384

sams2, 121f03

Start GMT 06-June-2013, 157/08:00:00.001

Sum  
Hanning, k = 877  
Span = 7.97 hours



from: misc/yoda/pubpad.pims, 08-Jun-2013, 06:05:16.235

Description	
Sensor	121f03 500 sa/sec (200 Hz)
Location	LAB1O1, ER2, Lower Z Panel
Plot Type	spectrogram ( $\Sigma$ ); $f < 10$ Hz

### Notes:

- On GMT 06-Jun-2013 at 12:40, there was handover from US to RS for attitude control.
- The Progress 51P propellant line purge took place from 13:02 – 13:07.
- Handover back from RS to US attitude control took place at 15:10. This was according to MER console log, but SAMS data shows that may have happened sooner (at about 14:45 or so).
- This spectrogram shows the main impact on the vibratory regime is the elevated structural excitation at below 2 Hz that we attribute to RS attitude control between about GMT 12:40 to about 14:45 (see black double-ended arrow), which ends about 25 minutes earlier than reported in MER console log.

Regime:	Vibratory
Category:	Vehicle
Source:	Propellant Line Purge

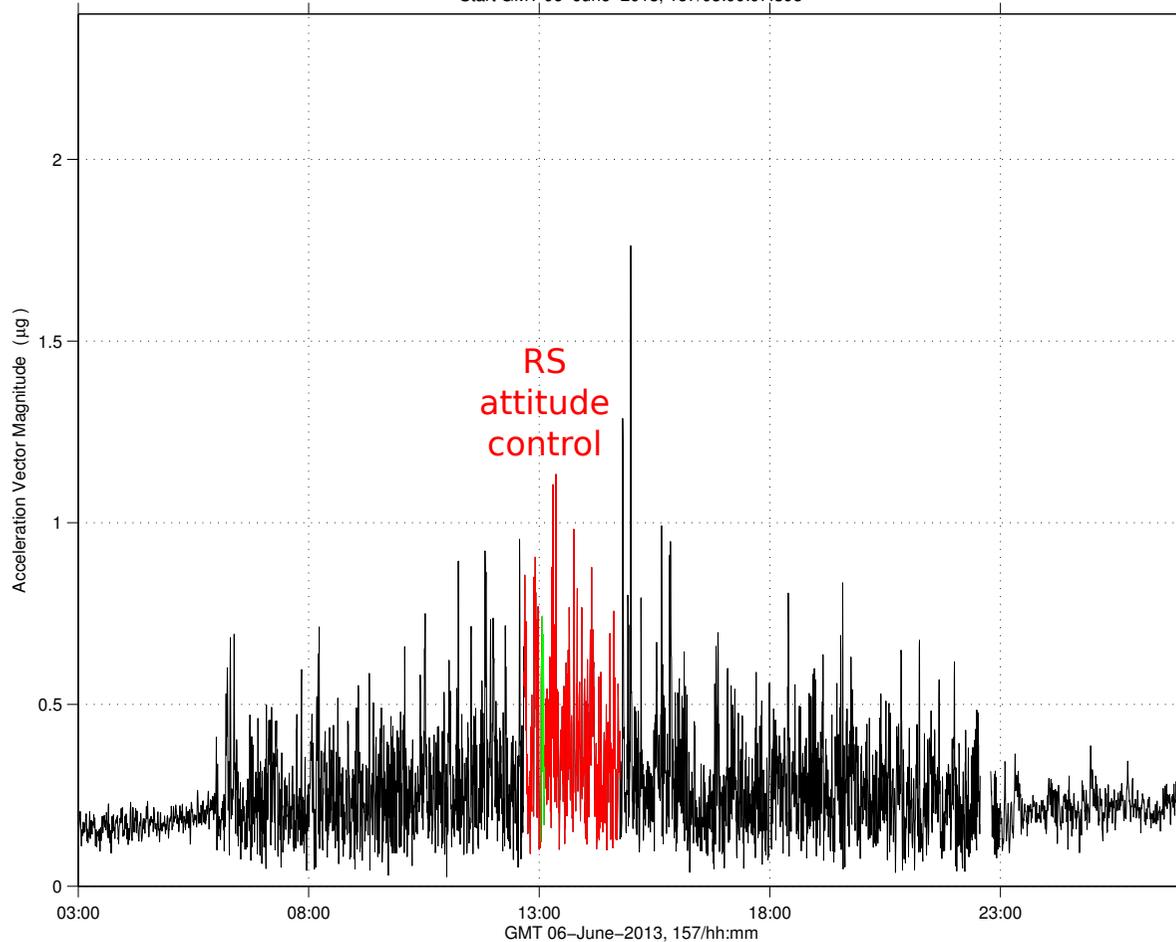


## Progress 51P Propellant Line Purge Quantify

mams, ossblmf at LAB1O2, ER1, Lockers 3,4 [135.28 -10.68 132.12]  
0.0625 sa/sec (0.01 Hz)

Progress 51P Propellant Line Purge  
Start GMT 06-June-2013, 157/03:00:07.398

Vector Magnitude  
Trimmed Mean Filter  
Size: 48.00, Step: 16.00 sec.



Description	
Sensor	MAMS, OSS 0.0625 sa/sec (0.01 Hz)
Location	LAB1O2, ER1, Lockers 3,4
Plot Type	Vector magnitude vs. time

### Notes:

- The Progress 51P propellant line purge took place from 13:02 – 13:07 marked by thin green portion of the plot. During this time, the mean value of acceleration magnitude was 0.47 ug.
- RS attitude control from about 12:40 to about 14:45 on 06-June-2013 shown in red. During this time, the mean value of acceleration magnitude was 0.40 ug.
- Considering the crew wake span on 06-June-2013 when the ISS was not using RS attitude control, the mean value of acceleration magnitude was 0.28 ug
- If concerned with quasi-steady impact of prop purge events, then take special note of RS attitude control portion of timeline.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Propellant Line Purge



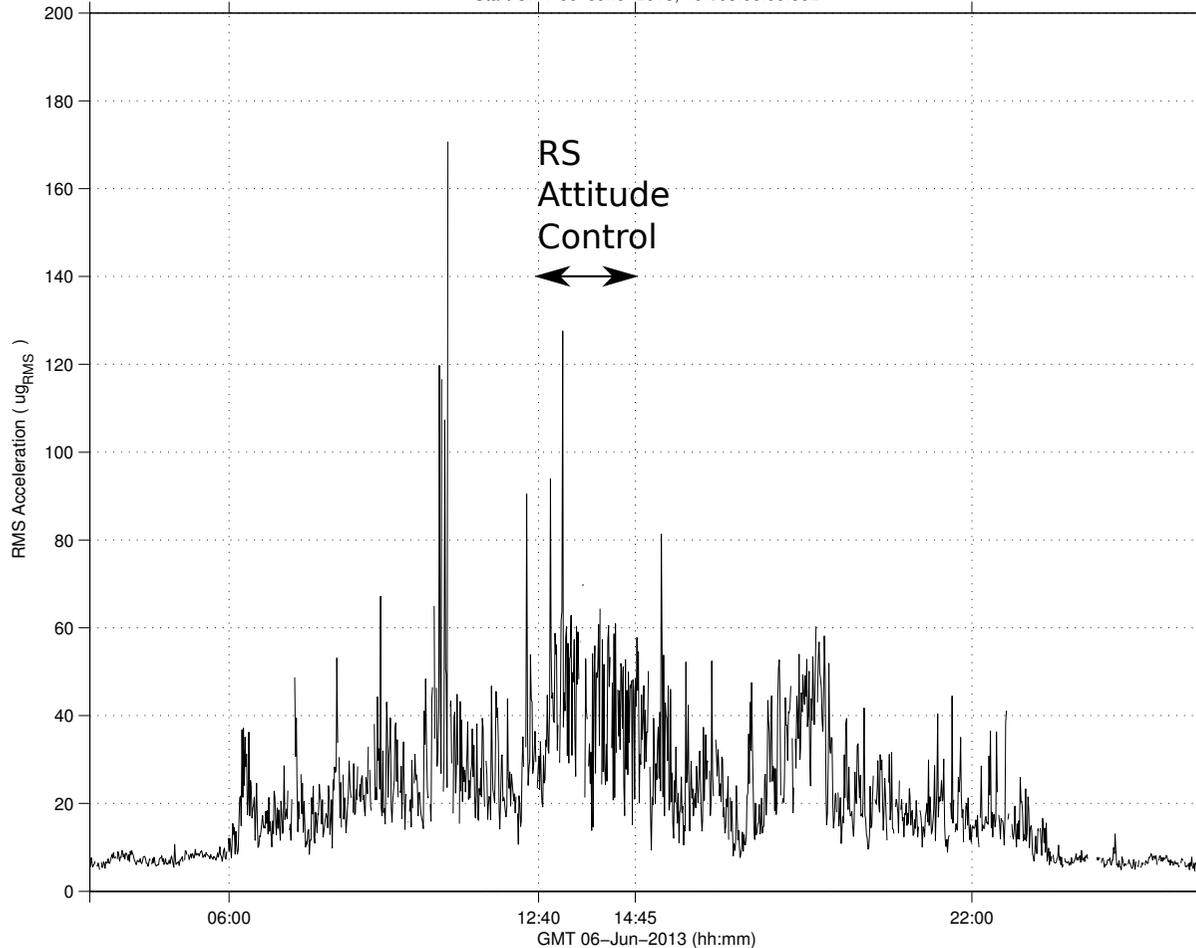
## Progress 51P Propellant Line Purge Quantify

sams2, 121f03006 at LAB1O1, ER2, Lower Z Panel:[191.54 -40.54 135.25]  
142.0000 sa/sec (6.00 Hz)  
Af: 0.017 Hz, Range: 0.01 - 3 Hz  
Temp. Resolution: 57.690 sec

SAMS2, 121f03006, LAB1O1, ER2, Lower Z Panel, 6.0 Hz (142.0 s/sec)

SSAnalysis[ 0.0 0.0 0.0]  
Hanning, k = 1

Start GMT 06-June-2013, 157/03:00:00.002



Description	
Sensor	121f03 500 sa/sec (200 Hz)
Location	LAB1O1, ER2, Lower Z Panel
Plot Type	RMS vs. time; $f < 3$ Hz

### Notes:

- The Progress 51P propellant line purge is quantified in another way here with focus on structural mode regime ( $f < 3$  Hz in USL).
- RS attitude control from about 12:40 to about 14:45 on 06-June-2013 is again seen is primary impact associated with propellant purge activity. Thruster firings associated with attitude maintenance are likely accounting for the excitation below 3 Hz or so.

Regime:	Vibratory
Category:	Vehicle
Source:	Propellant Line Purge

